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(54) Title: STEM CELL POPULATIONS AND METHODS OF USE

(57) Abstract: Populations of stem cells and methods for their isolation and use are provided. These stem cell populations comprise aldehyde dehydrogenase positive (ALDH^{br}) cells isolated from bone marrow, and ALDH^{br} CD105⁺ cells derived from any stem cell source. These populations may also comprise cells expressing such surface markers as CD34, CD38, CD41, CD45, CD105, CD133, CD135, CD117, and HLA-DR, and/or are substantially free from such cell surface markers as CD3, CD7, CD 10, CD 13, CD 14, C1319, CD33, CD35, CD56, CD 127, CD 138, and glycophorin A. The population may also comprise cells expressing CD90. The stem cell populations of the invention are isolated from a stem cell source such as bone marrow, peripheral blood, umbilical cord blood, and fetal liver. Methods of the invention comprise isolating and purifying stem cell populations from stem cell sources, and methods of using these cells to reconstitute, repair, and regenerate tissues.

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